



# Applications

For Exercises 1–4, describe a sequence of five correct or incorrect answers that would produce each Math Fever score. Write a number sentence for each score.

1. Super Brains: 300
2. Rocket Scientists:  $-200$
3. Know-It-Alls:  $-250$
4. Teacher's Pets: 0
5. **Multiple Choice** Which numbers are listed from least to greatest?
  - A. 300, 0,  $-200$ ,  $-250$
  - B.  $-250$ ,  $-200$ , 0, 300
  - C. 0,  $-200$ ,  $-250$ , 300
  - D.  $-200$ ,  $-250$ , 300, 0

For Exercises 6–8, find each Math Fever team's score. Write a number sentence for each team. Assume that each team starts with 0 points.

6. **Protons**

Point Value	Answer
250	Correct
100	Correct
200	Correct
150	Incorrect
200	Incorrect

7. **Neutrons**

Point Value	Answer
200	Incorrect
50	Correct
250	Correct
150	Incorrect
50	Incorrect

8. **Electrons**

Point Value	Answer
50	Incorrect
200	Incorrect
100	Correct
200	Correct
150	Incorrect

For each set of rational numbers in Exercises 9 and 10, draw a number line and locate the points. Remember to choose an appropriate scale.

9.  $-\frac{2}{8}, \frac{1}{4}, -1.5, 1\frac{3}{4}$

10.  $-1.25, -\frac{1}{3}, 1.5, -\frac{1}{6}$

11. Order the numbers from least to greatest.

23.6    $-45.2$    50    $-0.5$    0.3    $\frac{3}{5}$     $-\frac{4}{5}$

Copy each pair of numbers in Exercises 12–19. Then insert  $<$ ,  $>$ , or  $=$  to make each a true statement.

12.  $3 \blacksquare 0$

13.  $-23.4 \blacksquare 23.4$

14.  $46 \blacksquare -79$

15.  $-75 \blacksquare -90$

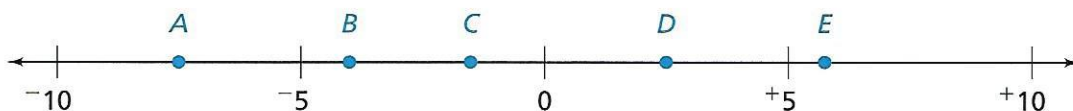
16.  $-300 \blacksquare 100$

17.  $-1,000 \blacksquare -999$

18.  $-1.73 \blacksquare -1.730$

19.  $-4.3 \blacksquare -4.03$

20. a. Estimate values for points A–E.



b. On a copy of the number line, graph the following numbers.

$$-9 \quad 10.5 \quad \frac{1}{2} \quad -\frac{5}{2}$$

c. Describe the location of a number and its opposite on the number line.

21. For each pair of numbers, identify which number is farther from  $+1$ . Explain your reasoning.

a.  $-7$  or  $+3$

b.  $-10$  or  $+7$

22. Identify the temperature that is halfway between each pair of temperatures.

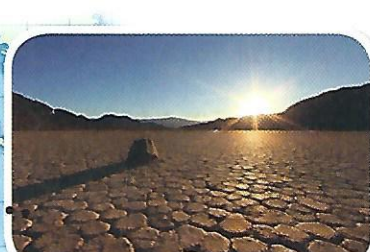
a.  $-23^\circ\text{F}$  and  $+23^\circ\text{F}$

b.  $-20^\circ\text{F}$  and  $+10^\circ\text{F}$

c.  $+20^\circ\text{F}$  and  $-10^\circ\text{F}$

## Did You Know?

**The record** high and low temperatures in the United States are  $134^\circ\text{F}$  in Death Valley, California and  $-80^\circ\text{F}$  in Prospect Creek in the Endicott Mountains of Alaska. Imagine going from  $134^\circ\text{F}$  to  $-80^\circ\text{F}$  in an instant!



For Exercises 23–30, graph each statement on a number line.

23.  $x$  is less than 7.

24.  $x$  is greater than or equal to  $-7$ .

25.  $x < -2$

26.  $x \geq -1$

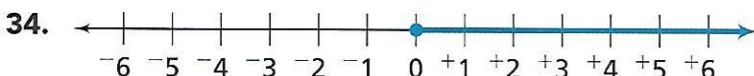
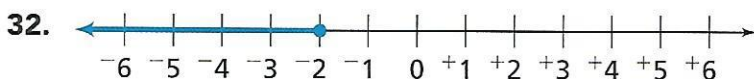
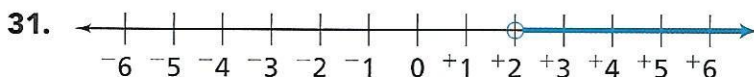
27.  $x \leq 8$

28.  $x < 5$

29.  $-3 < x < 5$

30.  $x > -6$

For Exercises 31–34, write an inequality for each set of numbers on the number line.

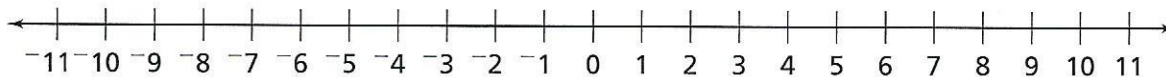


35. The school cafeteria can hold at most 150 people.

a. Write a number sentence to represent the number of people that can be in the cafeteria at any time during the day.

b. Graph your answer to part (a) on a number line.

For Exercises 36–45, follow the steps using the number line. What is the final position?



36. Start at 8. Add  $-7$ .

37. Start at  $-8$ . Add 10.

38. Start at  $-3$ . Add  $-5$ .

39. Start at 7. Add  $-7$ .

40. Start at  $-2$ . Add 12.

41. Start at 3. Subtract 5.

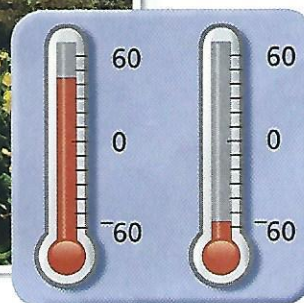
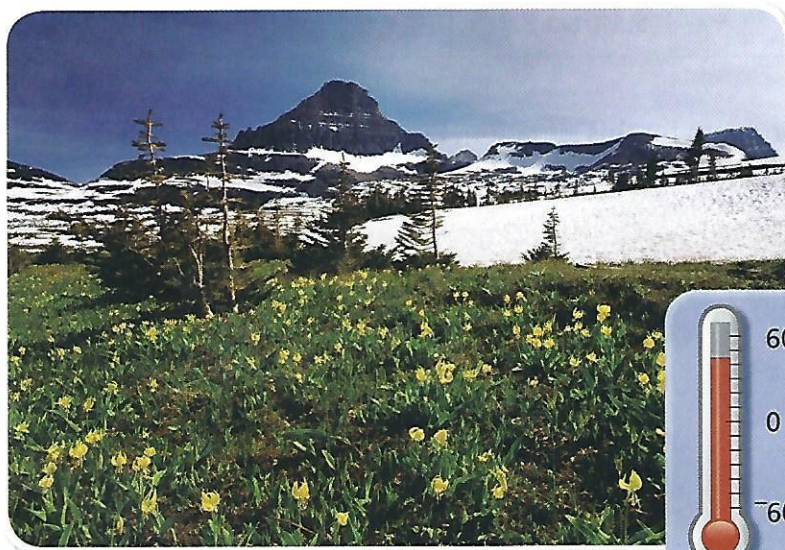
42. Start at  $-2$ . Subtract 2.

43. Start at 4. Subtract 7.

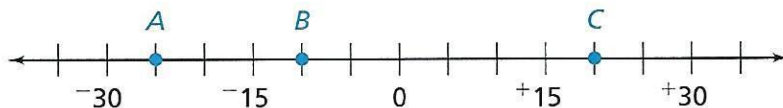
44. Start at 0. Subtract 5.

45. Start at  $-8$ . Subtract 3.

46. a. What are the opposites of 3, 7.5, and  $-2\frac{2}{3}$ ?  
 b. For each number in part (a), find the sum of that number and its opposite.
47. The greatest recorded one-day temperature change occurred in Browning, Montana (bordering Glacier National Park), from January 23–24, 1916. The temperature fell from  $44^{\circ}\text{F}$  to  $-56^{\circ}\text{F}$  in less than 24 hours.



- a. What was the temperature change that day?  
 b. Write a number sentence to represent the change.  
 c. Show the temperature change on a number line.
48. Find the value for each labeled point on the number line. Then use the values to calculate each change.



- a.  $A$  to  $B$                       b.  $A$  to  $C$                       c.  $B$  to  $C$   
 d.  $C$  to  $A$                       e.  $B$  to  $A$                       f.  $C$  to  $B$